Agenda
Meeting between American Gas Association &
EPA's Office of Solid Waste & Emergency Response
Tuesday, October 24
4 p.m. (EST)
Call-in Number (202) 260-7280, access code 7394#

Attendees from AGA: Pam Lacey (Environmental Lawyer), Lori Traweek (Vice-President for Operations and Engineering), and Marc Himmelstein (consultant to AGA)

Attendees from EPA: Mike Shapiro (Deputy Assistant Administrator, Office of Solid Waste & Emergency Response), Elaine Davies (Acting Director, Superfund), Bill Muno (Region 5 Waste Management Division Director), Rick Karl (Region 5), Mike Sanderson (Region 7 Waste Management Division Director), Ken Buchholz (Region 7), Eric Nold (Region 7), Larry Zaragoza (Region 5/7 Center Director, Superfund), Craig Beasley (Region 5/7 Center, Superfund), Helen Duteau (Community Involvement & Outreach Center, Superfund), Peter Redmond (Community Involvement & Outreach Center, Superfund), Suzanne Wells (Community Involvement & Outreach Center Director, Superfund).

Purpose of meeting: To begin a dialogue between the American Gas Association and EPA on prevention of mercury spills from regulator gauges and manometers.

1. Introductions

2. American Gas Association's involvement with the issue
   - What is known about extent of the problem
   - Outreach efforts to AGA's members
   - Observations of EPA's involvement to date

   My regulator used 1930 - 1960's installed as late as 1967 until they were replaced by spring regulators.

3. EPA regional involvement
   - Response work to date
   - Contacts with local utilities

   1 - 4 oz per regulator

4. Discussion of possible next steps
   - Are there other organizations that should be involved?
   - What are best steps to prevent future mercury spills?

Mike Sanderson
913 551 7976

Bill Muno
312 353 9306

Rod Turpin (732) 321-6724

Gas Pressure Regulators
With Mercury Seal Relief Valves

History, Recent Actions, and Path Forward

American Gas Association
Oct. 24, 2000

Function of Gas Regulators

- **A gas regulator is a safety device for reducing gas pressure.**
- **Pressure in gas delivered to home is generally between 1/4 - 2 pounds per square inch (psi).**
- **Where gas in a utility line is at a higher pressure (e.g. 30 psi), the residential gas regulator reduces pressure to safe levels for use in the home.**
- **Not all homes need residential regulators.**
- **Many homes are located in areas with low pressure gas lines.**

Gas Regulator History

1930s Natural Gas Entry:

- Natural gas began to be introduced in some systems before World War II.
- Some systems began to use increased pressure to move more gas. This required more regulators.
- First early introduction of more effective regulators - using a mercury seal relief valve.

Gas Regulator History

1940s-1967 Mercury Regulators

- At the end of World War II, natural gas replaced manufactured gas. New suburbs were built for returning *veterans and their families. Delivery pressures* were increased in new gas lines to serve the expanding demand.
- Gas pressure regulators using mercury seal relief valves became the preferred safety device for reducing gas pressure for homes.
- Most were made and installed @ 1940s - 1950s.
- Some were still made and installed until 1967.
- Remember that mercury was and still is used in many common products, e.g. fever thermometers, thermostats, fluorescent lights.

Gas Regulator History

Spring Relief Valve Regulators

- A newer more effective pressure regulator was developed later. After testing and field experience, this became the preferred type of regulator by the 1960s.
- Uses a mechanical spring relief valve.

How to Distinguish Mercury from Spring Models:

- By manufacturer name and model number.
- By the distinctive mercury cup.
- Note also - Spring regulators may be mounted vertically or horizontally. whereas mercury regulators were mounted only horizontally.

Regulator Construction and Installation

- All types of regulators were made of cast iron.
- Mercury cup in the relief valve typically contained between 1- 4 ounces of mercury by weight (equals 1/2 teaspoon - 2 teaspoons in volume).
- Why are some regulators located inside homes?
- Because – in early 1900s, in colder climates, meter sets were often located indoors - in basements or a closet - to prevent freezing.
- Typically, regulator is installed adjacent to the gas meter.
- Gas is drier now – it is less likely to contain water that could freeze.
- Utilities now prefer to install the meter set outside home where it is easier to service and read.

Accidental Spills Are Very Rare

- Intact cast iron regulators do not leak.
- If a regulator 'fails,' some mercury could escape into the relief vent, but this always would vent *outside* the home, and only a small amount would escape into the vent pipe.
- *Removal of regulator can pose some risk of spill, depending on procedures. But spills have been rare.*
- Company procedures vary, but all have the goal of preventing spills, and of prompt appropriate response in the rare event of an accidental spill.
- Caution: avoid pressing for massive removal campaign. Removals should be done carefully and methodically.

Mercury Health Effects

- Liquid mercury is not readily absorbed.
- Inhaling metallic mercury vapor can cause neurological harm at certain levels.
- OSHA standard for 8 hr exposure: 50 ug/m3
- No health effects indicated below 20 ug/L in urine.
- Compare: Studies indicate typical mercury silver amalgam dental fillings do not adversely affect health. Typical mercury vapor levels in mouth sampled after grinding teeth: 0.7 ug/m3.

Screening Levels: Need Consistent, Sensible Guidance

- Screening levels in Chicago: 3.0 ug/m3
  Clean-up
- ~~Screening level in Detroit:~~ 0.3 ug/m3 — 1.0 $\mu g/m^3$
- Jerome sampling meter is well known, demonstrated, and can detect mercury down to 3 ug/m3.
- Lumex - used for first time this year - detects down to 0.002 ug/m3. There are only a few available in U.S.

Mercury Detection Technology at a Glance (cont.)

Jerome Analyzer

- In use for mercury cleanups since late 1980s
- Commonly used for mercury releases
- Used by Nicor.
- Peoples -visual inspection

Lumex

- New, in short supply
- Used with other analyzers in cleanups first time this year
- Not used by Nicor for screening.
- Used by MichCon in retesting homes

Mercury Detection Technology at a Glance (cont.)

Modified NIOSH 6009

- **Pump and sorbent**
- **Not instantaneous**
  - *Requires 8-hour temperature stabilization*
  - *8-hour time weighted average concentration*
  - *Sorbent sent to lab for analysis - 1 to 3 days*

Mercury Detection Technology at a Glance (cont.)

Modified NIOSH 6009

- **Detection Limit ~ 0.2 μg/m³**
- **Used in worker safety**
  - *Used for mercury cleanups since 1989*
- **Used by MichCon to confirm Lumex and "clean" determination**
- **Used by Nicor to confirm clean determination**

There are other technologies - e.g.
Mercury Instruments GmbH
Nippon

Background Hg Levels In Air

- Mercury concentrations range from 0.01-0.02 ug/m³ in urban outdoor air
- By comparison, Mercury has been measured in breath up to 0.7 ug/m³ after grinding teeth which have common type of dental fillings
- 1994 Swedish study reported a release rate of 20 ug from mouths of healthy individuals with a "moderate" number of fillings. Chewing and drinking hot beverages increased emission temporarily by 3 to 10 times. Skare, Mass Balance and Systemic Uptake of Mercury Released from Dental Amalgam Fillings.

Potential Benchmark Guidelines: Hg in Air

Agency	Guideline	Conc. (µg/m³)	Exposure Assumptions
EPA RFC Guidance	Homes or areas occupied > 20 hours	0.3	Continuous 24-hours (or >20 hr) per day
EPA Region V Guidance	School or areas occupied < 20 hours	2.0-9.0	< 20-hours per day
OSHA Standard	Occupational permissible exposure limit	50	8-hour workday

Next Steps

- Need a sensible, methodical approach.
- Take into account true health risks.
- Consider availability of sampling equipment. (Lumex is new and scarce).
- Uniform Guidance for screening and action levels would yield more predictable agency decisions and streamline response.
- Outreach and training for contractors and others engaged in regulator removals and spill response will help prevent future problems.

ACA Training Pgm.

Meeting Notes

U.S. EPA and the American Gas Association (AGA)
EPA's Office of Solid Waste & Emergency Response
Washington, DC • October 24, 2000 • 4:00 – 5:30 pm (EST)

Participants

AGA: Pam Lacey, Senior Managing Counsel, AGA
Lori Traweek Sr. Vice-President, Operations and Engineering
Marc Himmelstein, President, National Environmental Strategies (Consultant to AGA)

EPA: Mike Shapiro, Deputy Assistant Administrator, OSWER
Elaine Davies, Acting Director, OSWER/OERR
Bill Muno, Waste Management Division Director, Region 5*
Rick Karl, Region 5*
Mike Sanderson, Waste Management Division Director, Region 7*
Ken Buchholz, Region 7*
Eric Nold, Region 7*
Rod Turpin, Region 7*
Linda Gnokowicz, Region 7*
Phil Campagna, Region 7*
Larry Zaragoza, OSWER/OERR, Region 5/7 Center Director*
Craig Beasley, OSWER/OERR, Region 5/7 Center
Suzanne Wells, OSWER/OERR, Community Involvement & Outreach Center Director
Helen Duteau, OSWER/OERR, Community Involvement and Outreach Center
Peter Redmond, OSWER/OERR, Community Involvement & Outreach Center
Trish Tidwell, Special Assistant to OSWER AA, Tim Fields
Donna Riley, AAAS Fellow to U.S. EPA, OSWER/OERR/CIOC
*indicates participation by telephone

Purpose

A meeting between U.S. EPA and the American Gas Association was convened to begin a dialogue regarding the prevention of mercury spills from regulator gauges and manometers.

AGA Perspective on Mercury Spills from Gas Regulator Replacement

Pam Lacey presented AGA's perspective on the mercury spills from gas regulators. She provided a handout with an historical overview of the manufacture, use and replacement of mercury gas regulators. Highlights of her talk and EPA reactions include:

Cleanup Protocols

- Concern with MichCon cleanup protocol that uses a solvent to volatilize the trace mercury that remains. (Draft R5 guidance) (Donna R. asked name of solvent)

Screening Level Concerns

- Concern with different screening levels used in Chicago and Detroit; Bill Muno replied that 3 µg/m3 was used because it is the lowest reading on the Jerome meter, not a health-

based number. Try to clean to a 1 µg/m3 – o.3 µ/m3.

- Bill Muno says HgX is a compound used to bind mercury, not volatilize it.

Extent of Problem – National or Local?

- AGA wants to provide assurance to consumers that there are no health risks (Pam L.)
- When asked whether this is a national problem, Pam said Nicor situation is not the norm. Lori responded that industry would not characterize this as a nationwide problem – given levels and numbers found. She feels the situation in Chicago and Detroit is not a reason to be overly concerned.
- Bill Muno said that Nicor's lack of oversight of contractors resulted in sloppy shop-keeping. Of the 210,000 homes screened by Nicor, 679 homes had contamination. The ultimate destination for the discarded gas meters were scrap yards, not hazardous waste certified facilities. Nicor has cooperated; 679 contaminated homes is significant (screen .3µg/m3 for screening in Detroit); some screening is only visual.
- When asked about national problem – AGA stated that members are fully aware of what is going on; sense that Nicor situation is not the norm, i.e., haven't changed as many meters and hasn't been done as sloppily. The challenge, according to the AGA, is to address the problem without going overboard and with appropriate response.
- Bill Muno replied that they don't really know the extent of the problem with MichCon; suggested reasonable way to narrow down homes impacted.
- Pam Lacey said Peoples Gas is developing an audit to determine if there is a problem.
- Lori suggested that AGA would work with EPA on an audit. Mike Shapiro suggested that a statistical sample may help determine extent of problem.
- Mike Shapiro suggested looking at where else Nicor contractor(s) worked; said audit approach may work; since culpable contractor was a PA company, it makes sense to ask PA utilities itf they have any problems from this contractor's work; AGA responded with liability issues if AG pursued contractor; suggested that EPA may be in a better position to do this.
- Mike Sanderson – visual screening not viable. Expressed concern with measuring in breathing zones since mercury is heavy and usually lays low. Region 5 is starting out with visual screening and backing up with Jerome. Region 5 is doing sampling at lower levels to find source.

Mercury Meter Replacement Training Available

- Elaine Davies asked about procedures; AGA said the *Gas Technology Institute* (GTI) is offering a training program next month on the proper protocol and procedures for replacing mercury gas meters. Craig Beasley will follow-up with the GTI to review adequacy of training.

Action Items

1. Follow up with Region 5 regarding Mercury Screening Cleanup Protocol Guidance (Craig Beasley)
2. Obtain the name of the Hg solvent used in Michcon cleanups (Donna Riley).
3. Review GTI training course (Craig Beasley)
4. Work with AGA on audit procedures.

ATSDR Document
Revised 12/5/03

Suggested Action Levels
for Indoor Mercury Vapors in Homes
or Businesses with Indoor Gas Regulators

Purpose: This document is intended solely as a quick reference guide for use by public health and environmental officials in evaluating data collected from structures in which mercury pressure regulating devices for natural gas meters were moved from inside to outside the structures as part of a modernization process. It does not provide detailed justifications for environmental sampling requirements, as health consultations or environmental sampling plans may do.

In the past, ATSDR has been reluctant to provide a list of suggested action levels such as this because of the site specific nature of exposures. ATSDR has recognized that action levels can differ according to differing populations, exposure durations, concentrations, and specific hazards. However, the immediacy and extent of the potential health risk associated with mercury contamination in the present situation require publication of this guide. Many parts of the country may be affected by the possible exposure to mercury resulting from re-positioning of mercury-containing gas pressure regulators and the subsequent response efforts of gas utilities, public health and environmental officials. Moreover, the involvement of multiple health and environmental jurisdictions creates a need for consistency in presenting health risk information. Therefore, ATSDR, at the request of a state health department and an U.S. EPA regional office, is attempting to provide suggested action levels for various response activities under different exposure scenarios.

Background: In this context, an *action level* is an indoor air concentration of mercury vapor, which should prompt consideration of the need to implement a recommended response by public health and environmental officials. The various suggested action levels provided in this document are intended as recommendations, not as regulatory values or cleanup values, although some may correspond to present or future values adopted by regulatory authorities.

The suggested action levels presented in this document recognize that an individual must be exposed to a sufficient concentration over some specific period of time in order for mercury vapor to cause adverse health effects. The suggested action levels also recognize that while individual susceptibility may vary, developing fetuses and young children under six years old are generally at higher risk than others of incurring adverse health effects from exposure to mercury vapor. If the indoor air concentration corresponding to any suggested action level is exceeded, then a potential health risk may be present, and responders should evaluate the exposures at that location and consider implementing appropriate protective measures to reduce or eliminate the risk.

The suggested action levels presented here are based on data available in ATSDR's Toxicological Profile for Mercury (1999) or in the Hazardous Substance Databank of the Toxicology Data Network at the National Library of Medicine. ATSDR has also made use of additional data collected by the US Environmental Protection Agency (EPA) and of specific experiences of ATSDR at other sites. Other factors considered in the development include available information on normal background levels and analytical detection limits of various techniques for evaluating airborne contamination. Any information specific to the exposures at any given location as described below should also be considered before implementing a response action.

These suggested action levels are extrapolated from health guidance values (HGVs) independently developed by two federal agencies, ATSDR and EPA. These HGVs are based on both animal studies and human epidemiology studies that detail the health effects of inhalation of mercury-contaminated air. ATSDR has developed a chronic Minimal Risk Level (MRL) of 0.2 ug/m^3 that is based on a 1983 study of workers exposed to an average Lowest Observed Adverse Effect Level (LOAEL) of 26 ug/m^3 over an average of 15 years. This workplace average exposure was adjusted from a 40 hour per week exposure to a 168 hour per week exposure (i.e., 24 hours/day, 7 days/week) and then divided by an uncertainty factor of 30 to account for the use of the LOAEL and the different sensitivities of individuals. In addition, EPA has used the same study to develop a Reference Concentration (RfC) of 0.3 ug/m^3, using different assumptions and uncertainty factors. ATSDR considers the RfC and the Chronic MRL to be the same value for all practical purposes. An MRL, then, is defined as an estimate of the daily exposure level to a hazardous substance (in this case, metallic mercury) that is likely to be without appreciable risk of adverse, non-cancer health effects (metallic

mercury is not considered to be a carcinogenic substance) over a specific exposure route and duration of exposure. For further information, see Section 2.5, Chapter 7, and Appendix A of the ATSDR Tox Profile and the EPA's Integrated Risk Information System (IRIS) on the Internet at www.epa.gov/ngispgm3/iris/index.html

The suggested action levels in the tables below were designed for a group of structures where pressure regulators using approximately 2 teaspoons (and perhaps more) of mercury (~10 ml or 135 g) and the accompanying gas meters were re positioned from the interior of buildings (including homes) to the exterior. During this adjustment of regulator location that may have taken place some time ago, mercury was spilled in some instances. However, spills of mercury may not have occurred indoors. Therefore, the categories of exposure include (a) buildings that may have had no spills; (b) buildings that had spills and needed cleanup but had air mercury levels that constitute no immediate health risk; and (c) buildings that had spills resulting in indoor air concentrations sufficient to warrant isolating humans from the exposure. In general, the screening for these homes or businesses consists of: (1) confirming that a natural gas meter had been in the building and moved outside; (2) observing the area where the gas meter had been originally for metallic mercury; (3) asking the resident if they had ever noticed metallic mercury in the vicinity of the gas meter; and, (4) evaluating the area with a Jerome™ meter or the equivalent. If there is any positive indicator of mercury on the Jerome Mercury Vapor Analyzer (a real time air monitoring instrument) that cannot be explained by interferences, then the building is placed on the list for further characterization.

Visible mercury is not only a source of vapors but also a tracking hazard and an attractive nuisance. No matter what the airborne concentration is, free liquid mercury may pose a problem in the general population. Generally, a condition that no visible mercury be present is stipulated only at stages when cleanup is completed. This condition may be considered as much a check on the data quality as anything else. It is rare that liquid mercury exists at concentrations as low as would be considered safe in most exposure scenarios other than a workplace where mercury is used in the production process.

General Exposure Assessment Considerations: The primary route of entry for metallic mercury is by inhalation; ingestion and skin absorption of this form of mercury is usually not biologically significant. Sensitive populations to mercury exposure are those with developing central nervous systems, including young children and the fetuses of women who are pregnant. Other individuals of potential concern are those with pre-existing kidney conditions, usually at exposures to much higher concentrations than the first group. The specific exposure of these groups in any given situation should be considered when assessing the need for any given response action. Specific concerns are mentioned in the tables below. If there is any doubt, responders should consult with state or local public health officials before deciding on a course of action. Responders may also contact ATSDR at 404-639-0615, 24 hours a day.

Exposure Assumptions for Different Settings: For the purposes of this document, the residentially exposed population includes infants, small children, and pregnant women presumed to have inhaled mercury for a period up to 24 hours per day, 7 days per week potentially for months or even years. Occupational or commercial settings include those individuals that are primarily healthy adults exposed up to 8-10 hours per day, 40 hours per week, with transient exposures by sensitive populations (e.g., a retail establishment or schools). The concentrations provided as suggested action levels are for comparison to the environmental data collected in affected residences and workplaces.

Suggested Action Levels for Mercury (CAS # 7439-97-6) - **Residential Settings** †

Indoor Air Concentration (ug/m^3)	Use of the Action Level	Rationale for Action Level	Method of Analysis *	Reference
≤1.0	Level acceptable for occupancy of any structure after a spill (also called the residential occupancy level.)	A spill occurred in this building, and the risk manager needs to know if the building is safe for occupancy. ATSDR would prefer no one ever be chronically exposed to concentrations above the MRLs; however, experience has shown cleanup operations in a response to concentrations below 1 ug/m^3 can be extremely disruptive to individual and family quality of life. While this concentration is slightly above HGVs, this level is still 25 times lower than the human LOAEL on which the MRL is based. An indoor air concentration of 1 ug/m^3, as measured by the highest quality data (e.g., NIOSH 6009 or equivalent), is considered safe and acceptable by ATSDR, provided no visible metallic mercury is present.	NIOSH 6009 or equivalent	Based on HGVs above ATSDR, 1999. EPA/IRIS
No qualitative detection on an Arizona Instrument's Jerome™ Meter.	Screening level for homes that had indoor gas meters with no evidence of a spill	Mercury was present in the regulator inside the home, but no evidence of a spill is found. The qualitative detection limit of the most commonly available air monitoring instruments approximates 1 order of magnitude below levels of known human health effects. As there was no spill, no visible metallic mercury should be present. Natural ventilation (e.g., windows, HVAC air changes, etc.) should reduce any concentration even lower with no disruption of family life or costs.	Real time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	
10	Isolate residents from the exposure	When adjusted from an intermediate to chronic exposures to a continuous exposure scenario (i.e., 24 hrs/day, 7days/week), this concentration approaches levels reported in the literature to cause subtle human health effects. Applied to acute exposures with good accuracy by real time instruments, this value allows for interventions before health effects would be expected. Whenever possible, the mercury vapors should be prevented from reaching living spaces rather than temporarily relocating individuals. See the building evaluation protocol developed for these situations in your area and Section 2.1 of ATSDR's Toxicological Profile.	Real-time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	ATSDR, 1999
10	Acceptable level in a modified test procedure to allow personal effects to remain in the owner's possession	For personal effects, such as clothing, warmed in a discrete plastic container much smaller than a typical room (e.g., a garbage bag), this concentration in the air trapped inside the container is considered safe by ATSDR based on a number of factors.	Real-time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	

* - Environmental analysis should be in accordance with the requirements specified by environmental authorities. When real-time air monitoring instruments are specified in this table, laboratory analysis may be substituted at the discretion of the risk managers involved in the event. Operation of real-time instruments should be in accordance with manufacturer's instructions.

† - Structures where mercury pressure regulating devices for natural gas meters were moved from inside the structure to outside the structure.

Suggested Action Levels for Mercury (CAS # 7439-97-6) – **Occupational and Commercial Settings** [1]

Indoor Air Concentration (ug/m³)	Use of the Action Level	Rationale for Action Level	Method of Analysis *	Reference
30	Re-occupancy after a spill of an occupational or commercial setting where mercury is not usually handled	Based on residential occupancy level but adjusted for the shorter duration exposures typical of most workplaces. This concentration approximates one order of magnitude below levels of known human health effects, provided no visible metallic mercury is present to act as an attractive nuisance or a source for more vapors. Those exposed in this instance would not expect hazards associated with mercury as part of their normal work and may include transient exposures by more sensitive individuals (e.g., retail facilities).	NIOSH 6009 or equivalent	HGVs. ATSDR, 1999. EPA/IRIS
25	Occupational settings where mercury is handled. •	Based on the 1996 ACGIH TLV. Assumes hazards communications programs as required by OSHA; engineering controls as recommended by NIOSH, and medical monitoring programs as recommended by the ILO, NIOSH, and ACGIH are in place. This concentration is ½ the peer-reviewed 1973 NIOSH REL and 1/4 the regulatory 1972 OSHA PEL. See HSDB at toxnet.nlm.nih.gov/sis on the Internet.	Real-time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	HSDB, 1999
25	Response Worker Protective Equipment Upgrade •	Response workers subject to HAZWOPER should evaluate need to upgrade protective equipment. Based on the 1996 ACGIH TLV. Assumes hazards communications programs as required by OSHA; engineering controls as recommended by NIOSH; and medical monitoring programs as recommended by the ILO, NIOSH, AND ACGIH are in place. This concentration is half the peer-reviewed NIOSH REL and a quarter of the regulatory OSHA PEL. See HSDB at toxnet.nlm.nih.gov/sis on the Internet. For these workers, engineering controls are not typically in place and it is not possible to control the exposure by other safety techniques	Real-time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	29 CFR 1910.120; 40 CFR 311; NIOSH, 1987
10,000	IDLH. Response Workers Protective Equipment upgrade.	Response workers subject to HAZWOPER should upgrade protective equipment. See http://www.cdc.gov/niosh/idlh/ on the Internet	Real-time Air monitoring instrument (i.e., Jerome™ meter or equivalent)	29 CFR 1910.120; 40 CFR 311; NIOSH 1987

*** - Environmental analysis should be in accordance with the requirements specified by environmental authorities. When real-time air monitoring instruments are specified in this table, laboratory analysis may be substituted at the discretion of the risk managers involved in the event. Operation of real-time instruments should be in accordance with manufacturer's instructions.**

† - Structures where mercury pressure regulating devices for natural gas meters were moved from inside the structure to outside the structure.

• - Women workers in these settings who are pregnant or attempting to become pregnant should consult their physicians regarding their mercury exposure.

Draft 12/5/00

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RE: Region 5 Gas Utilities

Dear Sir or Madam:

Some gas utilities in U.S. EPA's Region 5 territory, which includes Minnesota, Wisconsin, Illinois, Indiana, Michigan and Ohio, have identified problems with regulators and manometers that contain mercury. During the removal of regulators from homes and manometers from businesses, mercury spills have occurred, creating potentially hazardous conditions. These utilities have undertaken programs to ensure that their customers are safe from these contaminants.

To give you a sense of the scope of this situation, here is an example: In northern Illinois alone, three gas utilities are currently in the midst of inspecting 400,000 homes for mercury spills, a process that will continue for months to come. Already more than 700 cases of contamination have been identified -- with daily news stories on the growing situation. In addition, with at least one utility, contamination was also found at some of the company's service centers and a few local scrap yards that had received regulators removed from service.

U.S. EPA strongly encourages your company to review its records and address any concerns or issues associated with mercury regulators and manometers. If you have mercury regulators and/or manometers in your service area, please review your procedures for removal and disposal of those regulators and/or manometers. If spills have occurred, please review whether your company followed proper procedures for removal and disposal of any spilled hazardous materials.

If you have any questions or concerns regarding this issue, please contact of my staff at . Thank you for your consideration in this matter.

Sincerely,

Richard C. Karl, Chief
Emergency Response Branch

Copy: Rick K. / Linda N. / Brad S.

American Gas Association

December 29, 2000

William E. Muno, P.E.
Director, Superfund Division
U.S. EPA Region V
77 West Jackson Blvd.
Chicago, IL 60604-3590

RE: Clarifications of Meeting on Dec. 5, 2000 on Mercury-Containing Gas Regulators

Dear Mr. Muno:

Thank you for your prompt response to my Dec. 13th letter summarizing our meeting on Dec. 5, 2000. Your clarifications are helpful in understanding Region V's position. I think we essentially agree on the substance but have a somewhat different perspective and emphasis.

Clarification of EPA's Approach - My letter emphasized the sense that based on current evidence, there appears to be no need for further 'large scale' programs. Whereas your response understandably emphasizes the other side of the coin - that "U.S. EPA's determination to ensure that the gas utilities properly resolve mercury regulator issues" has not "softened," and that if the facts change in the future, so would EPA's response. I am sure that AGA member companies that received Richard Karl's December 7, 2000 letter are implementing appropriate programs to ensure that mercury regulators continue to be properly managed to prevent the potential problems EPA has identified.

You indicate that EPA Region V is not aware of "substantial problems" at gas utilities "other than those currently being assessed." While we refrain from commenting on whether that is a fair description for one utility, we hope you will find that evidence now being gathered will demonstrate that it is not a fair description for the other four utilities "currently being assessed." We understand you may have a different view currently, but we hope if the data warrants it, that Region V will support an equitable approach for these utilities.

Solvent – Thank you for your clarification with respect to cleanup methods. I thought there was a general consensus in our meeting about problems experienced with solvents that contain nitric acid. But I understand the clarification that Region V does not express any preference for cleanup products.

400 North Capitol St., NW, Washington, DC 20001 ■ Telephone 202-824-7000, Fax 202-824-7115 ■ Web Site http://www.aga.org

Cleanup Verification - As for using hand held analyzers such as Lumex in lieu of the NIOSH method 6009 for verification of residential cleanups, I understand that Region V wants to see more comparable data and would like NIOSH to take the lead on any revision to its guidance. I believe the data will be available within a few weeks, so that we can present it to NIOSH very soon.

As you requested, I plan to post your letter and mine as soon as possible on our web site for member information. Thank you again for a very productive meeting, and please let me know if you have any questions or need further information.

Sincerely yours,

Pamela A. Lacey
Senior Managing Counsel

Cc: Mike Shapiro, Deputy Assistant Administrator OSWER
Marc Himmelstein, President, National Environmental Strategies
Lori Traweek, Senior Vice President Operations & Engineering, AGA

American Gas Association

December 13, 2000

William E. Muno, P.E.
Director, Superfund Division
U.S. EPA Region V
77 West Jackson Blvd.
Chicago, IL 60604-3590

RE: Meeting on Dec. 5, 2000 Regarding Mercury-Containing Gas Pressure Regulators

Dear Bill:

It was a pleasure meeting you and your colleagues in Chicago last week. Marc Himmelstein and I appreciate both your time and your pragmatic approach. We were very pleased with what we heard at the meeting.

I gather that your staff will be preparing minutes for the meeting. I thought it might be helpful if I shared my own summary of some key points I heard in the meeting.

- **No Further Large Scale Re-Checking of Homes:** You agreed that events in Chicago appear to be the exception rather than the rule, and that EPA Region V sees no need and has no plans to require other gas utilities to conduct large programs to re-check homes where mercury-seal gas pressure regulators may have been removed in the past.
- **No Plans for Formal EPA Region V Guidance:** As things stand now, we agreed there appears to be no need to have a formal Region V Guidance on rechecking homes for past mercury regulator removals. You agreed such a large-scale Region-wide program does not seem to be in the public interest.
- **No CERCLA 104(e) Letters:** You indicated EPA Region V does not plan to send further CERCLA 104(e) letters to other gas utilities in Region V seeking information about mercury regulators.
- **One Page Letter Urging Self Audits:** You and Rick Karl gave us a heads up that you planned to send a short letter alerting gas utilities in your Region to events in Chicago and Detroit, and urging utilities to conduct self audits of their mercury removal protocols and take steps to prevent future accidental releases. Brad Stimple also indicated his plans to send a list of some key items EPA would like to see in removal protocols. After the meeting, he let me know you would be incorporating this list in the letter urging self audits. Thank you for letting us know about the letter and sending me a copy of the letter you sent out on Friday Dec. 8, 2000. As I promised, I have posted the letter on our web site and distributed it by e-mail to members for their information.

- **New ATSDR Suggested Action Levels Document:** You and Rick Karl discussed the new guidance from the Agency for Toxic Substance and Disease Registry (ATSDR) on "Suggested Action Levels for Indoor Mercury Vapors in Homes or Businesses with Indoor Gas Regulators." ATSDR states that the document was produced at the request of an EPA Regional office (presumably Region V) and certain state agencies. The document "is intended solely as a quick reference guide" to help provide consistency where multiple agencies are involved. It recognizes that site specific factors can vary, and it suggests using different action levels depending on different exposure scenarios. This guidance is not binding, and it leaves discretion to the agencies and on-site personnel involved in any particular investigation. However, the ATSDR document can provide a good tool for encouraging state agencies to take a more workable approach. You indicated that EPA Region V intends to follow the new suggested action levels. This includes the home screening level of 3 ug/m3, and the home cleanup level of 1 ug/m3. With regard to the cleanup level, I believe Rick Karl noted the ATSDR document recognizes that trying to clean down to 0.3 ug requires repeated, and often futile re-cleanings, disrupts family life, and is not necessary to protect health. The ATSDR also recognizes that studies of workers showed the average Lowest Observed Adverse Effect Level (LOAEL) for exposures of 40 hours per week over 15 years was 26 ug/m3. It notes that the home cleanup level is 25 times lower than the LOAEL.
- **Method of Home Cleanup Analysis (Need Clarification to allow Lumex):** We discussed the method for verifying home cleanup levels. The ATSDR indicates the home cleanup level (1 ug/m3) should be verified by "NIOSH 6009 or equivalent" method. You indicated that EPA may be willing to support a revision to allow using Lumex as an equivalent method. This could be based on data collected in Detroit showing that a Lumex real time analyzer produces "equivalent" results. In fact, we think an instantaneous analyzer is better. There also may be other analyzers entering the market that can detect at this level. As we discussed, the NIOSH method has several disadvantages. It requires closing the home and heating it for 8 hours, collecting air samples, sending them to a laboratory, and waiting 3 days or more for test results.
- **Statistical Sample OK for Re-Checking Homes:** We also discussed the specific points raised in my letter to Mike Shapiro dated November 14, 2000. Although you no longer plan to seek major re-checking programs for other gas utilities, in the event that a state agency may wish to re-check homes, and it seeks EPA's guidance, we understand EPA Region V can be expected to suggest reviewing a statistical sample rather than the universe of all possible past regulator locations. You agreed that where a program is underway to re-check past mercury regulator removals, it is not necessary to re-check every home where a regulator might have been removed. Instead, you agreed that it makes sense to re-check a smaller statistical sample of homes, using the 3.0 ug/m3 ATSDR screening level. The size of the sample would depend on several utility-specific factors.
- **Measure in the Breathing Zone:** I believe you agreed that the action levels should be measured in the breathing zone. We agreed that there should be some flexibility to recognize site specific factors – such as measuring at the 3 foot level where a basement is used for a children's bed room, or allowing a different measurement where an unfinished basement is used for storage.
- **Alternative Concrete Removal Option:** You and your staff agreed that removing and replacing concrete in a basement as described in my letter provides an effective, faster

alternative to other mercury cleanup methods. Ralph Dollhopf said he thought this was a protective, cost-effective option. Brad Stimple emphasized that EPA wants to achieve the action levels, and any method that achieves that goal is fine. We all agreed that it is best to allow people to use their creativity and ingenuity to find ways to achieve environmental goals.

- **HgCS Solvent:** Ralph Dollhopf agreed that HgCS solvent can cause increased mercury vaporization. He said he called the manufacturer and confirmed that the product is based on an industrial cleaner containing nitric acid, which can cause increased vaporization. You indicated that the solvent should not be required for cleanups in homes, and that HgX or another method could be used.

Next Steps:

ATSDR Follow-up: AGA plans to seek clarification in the ATSDR guidance to encourage the use of instantaneous analyzers (e.g. Lumex) to verify cleanup levels – as an equivalent to the NIOSH method. Any assistance you might be able to provide from your office would be appreciated.

Education and Information: I understand that EPA is interested in providing information and opportunities for education and training in mercury removal and spill response procedures. For example, as we discussed in the meeting, Brad Stimple suggested sending an outline of some of the key items EPA would like to see in removal protocols to help prevent spills. This outline was included in the letter you sent to Region V utilities on Dec. 8, and I have forwarded a copy to AGA members for their information.

Vent Pipe Issue: Rick Karl and Brad Stimple expressed concern about possible mercury releases to the atmosphere from regulator failures. They suggested that it would help if there were some way to prevent mercury from 'blowing out the vent pipe.' You recognized that there are other larger sources of mercury emissions, but said it would be helpful if there were a way to reduce potential emissions from regulator failures.

Voluntary Removal Programs for Pollution Prevention: Rick Karl and Brad Stimple also said it would help EPA's efforts to reduce mercury sources if some gas companies could accelerate their removals. You recognized it would not help to rush removals, if this would increase the risk of potential spills. However, some companies may be able to expand their removal programs while maintaining quality assurance. Such companies may be interested in a possible voluntary pollution prevention program. I have sent an alert inviting them to consider this option and let me know if they would like to participate.

If you have any questions or clarification, please let me know. Again, I appreciate the time and thought you and your colleagues devoted to this effort. This was a very productive meeting, and I look forward to working with you in the future.

Sincerely yours,

Pamela A. Lacey
Senior Managing Counsel

Cc: Mike Shapiro, Deputy Assistant Administrator OSWER
Marc Himmelstein, President, National Environmental Strategies

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Ms. Pamela A. Lacey
Senior Managing Counsel
American Gas Association
400 N. Capitol St., NW
Washington, DC 20001

REPLY TO THE ATTENTION OF

Re: Clarification of December 13, 2000 correspondence

Dear Ms. Lacey:

Thank you for meeting with us on December 5, 2000. The United States Environmental Protection Agency (U.S. EPA), Region 5 is pleased by your interest in assuring mercury containing gas pressure regulators are addressed in a manner which protects human health and the environment. However, after reviewing your correspondence referenced above, we feel the need to clarify certain sections of your letter to properly represent our position.

It has recently been brought to my attention that a possible consequence of the AGA's representation of our recent discussion is the misconception that U.S. EPA 's determination to ensure that the gas utilities properly resolve mercury regulator issues has softened. Please be assured that this is not the case. It would be most unfortunate if utilities currently working with the state health departments to affirmatively address their mercury regulator problems lost their resolve because of such misconception. Our clarifications are as follows:

With regard to the "re-checking" or screening of homes where mercury spills may have occurred, at this time Region 5 is not aware of gas utilities, other than those currently being assessed, where substantial problems have occurred. If in the future we find that attention is required in the form of a "large scale" screening of homes or businesses, Region 5, along with the appropriate state agencies, will work with the gas utility to address each situation individually based on the information received.

To clarify regarding Region 5 guidance, it is our policy to evaluate each gas utility's potential problem independently and to work with that utility to determine what is the best approach to protect human health and the environment.

At this time, Region 5 does not have plans to send CERCLA 104(e) Information Request letters to any new gas companies. However, if Region 5 receives information in the future which may warrant the issuance of such letters, the agency intends to do so.

With regard to using hand held mercury vapor analyzers such as a Lumex® to replace final clearance sampling using NIOSH method 6009 or similar, Region 5 has no immediate plans to do so. As expressed in our conversation, if in the future sufficient

data is generated, compiled and evaluated by the various agencies involved, Region 5 may consider the alternative when the situation is deemed appropriate. Along with comparison data, Region 5 would require a standardized method in performing the clearance sampling with a hand held instrument. As it stands, Region 5 would look to NIOSH to take the lead in determining the most appropriate method for verification of residential mercury cleanups.

As previously indicated, if releases from mercury gas regulators are encountered, Region 5 will evaluate the information independently to determine the most appropriate measure that needs to be taken. Region 5 supports the state health departments' use of statistical sampling. If these agencies feel it is prudent to use this approach, sample size would be determined and subsequently approved by the state health department. Additionally, Region 5 feels the approval of measurements in the breathing zone is a state health department decision that may be dependent on site specific factors.

Region 5 has stated repeatedly that is has no preference on the product used to cleanup elemental mercury. The utilities are free to determine what product would best suit their needs. It should be noted that although the use of HgCS solvent will increase mercury vaporization, as with many nitric acid reagents, this is a temporary condition. Mercury vapor levels should dissipate shortly after application.

U.S. EPA Region 5 appreciates AGA's efforts to facilitate communication among the gas utilities with regard to this issue. To assist us in prompt communication and proper information exchange, we would appreciate your posting this letter, along with your December 13, 2000 letter to us, on your web page as soon as possible. If you have any questions regarding this issue, please do not hesitate to contact Richard Karl, Chief of the Emergency Response Branch at (312)353-9295 or myself directly.

Sincerely yours,

Wm. E. Muno

William E. Muno, Director
Superfund Division

cc: Mike Shapiro, Deputy Assistant Administrator OSWER
Dave Parker, AGA President
Lori Traweek, AGA Sr. Vice President, Operations & Engineering
Marc Himmelstein, President, National Environmental Strategies

December 7, 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RE: Region 5 Gas Utilities

Dear Sir or Madam:

Some gas utilities in U.S. EPA's Region 5 territory, which includes Minnesota, Wisconsin, Illinois, Indiana, Michigan and Ohio, have identified problems with regulators and manometers that contain mercury. During the removal of regulators from homes and manometers from businesses, mercury spills have occurred, creating potentially hazardous conditions. These utilities have undertaken programs to ensure that their customers are safe from these contaminants.

To give you a sense of the scope of this situation, here is an example: In northern Illinois alone, three gas utilities are currently in the midst of inspecting 400,000 homes for mercury spills, a process that will continue for months to come. Already more than 850 cases of contamination have been identified -- with daily news stories on the growing situation. In addition, with at least one utility, contamination was also found at some of the company's service centers and a few local scrap yards that had received regulators removed from service.

U.S. EPA strongly encourages your company to review its records and address any concerns or issues associated with mercury regulators, manometers, and any other mercury-containing measuring devices. If you have mercury regulators and/or manometers in your service area, please review your procedures for removal and disposal of those regulators and/or manometers. While these procedures vary from one utility to the next, most have the following major elements in common: training for removal personnel, secondary containment during the removal, immediate capping of pipe ends on either side of the regulator, prompt overpacking of the removed device, air monitoring in the work area using a mercury vapor analyzer (MVA), proper disposal of the mercury-containing or contaminated items, and positive incentive for removal personnel to report spills. If you determine that spills have occurred, please review whether your company followed proper procedures for removal and disposal of any spilled hazardous materials.

For your information, the American Gas Association (AGA) has notified us that the Gas Technology Institute (GTI) has developed training courses about mercury use and cleanup in the gas and electric utility industry. These courses have been scheduled to be held at several locations across the country between November 2000 and February 2001. GTI's course information number is (847)768 0783.

If you have any questions or concerns regarding this issue, please contact Fred Bartman (312) 886-0776 or Brad Stimple (312) 886-0406 in the Chicago office. For Michigan and Ohio utilities, please contact Ralph Dollhopf (734) 692-7682 in the Detroit office. Thank you for your consideration in this matter.

Sincerely,

Richard C. Karl, Chief
Emergency Response Branch

bcc: Fred Bartman,OSC,SE-5J
Brad Stimple, OSC,SE-5J
Ralph Dollhopf,OSC,SE-GI
Tom Krueger, ORC,C-14J
Carol Ropski,EESS, SE-5J
Mick Hans, P19J
Louise Fabinski, ATSDR-4J

Tom Krueger 708-354-2943

708-386-7201 Ellen Spegman

847-540-8130 Rick Karl

847-286-5204 Frank L.

Nat Garcia - NBC5
cell 312-415-9728

Ruth Igoe - Tribune
312-222-3540

IEPA Duty Officer via IEMA
217-782-7860 (Clarence Smith)
217-744-2887 (direct)

Dennis McMurray
217-787-9486

Roger Kerman 217-785-4086
-1996 (direct)

State Impact on Int: Paxton, Ishet, Cicero

Scrap Collection Contractor List

Nicor Location by Region		Contractor	Contractor Phone #	Nicor Contact Person	# Steel Dumpsters	# Copper Dumpsters
NORTHERN						
Belvidere	1	BEHR IRON AND STEEL	(815) 987-2600	OPERATIONS	0	0
Crystal Lake	2	ELGIN SALVAGE & SUPPLY CO	(847) 742-9500	ROB RAYMOND	1	1
DeKalb		~~ELGIN SALVAGE & SUPPLY CO~~	(847) 742-9500	MIKE CARRERA	1	1
Dixon	3	SINOW AND WELMAN	(815) 288-4407	JOHN STRUB	1	0
Freeport	4	BILL BOELK	(815) 563-4186	JOHN STRUB	0	0
Morris	5	BERLINSKY SCRAP	(815) 726-4334	DAVE FANNIN	0	0
Ottawa	6	NEWTSON IRON	(815) 433-1658	JOE MITCHELL	1	0
Pecatonica		BEHR IRON AND STEEL - 1	(815) 987-2600	STEVE RIVARD	0	0
Rock Falls		SINOW AND WELMAN- 3	(815) 288-4407	DAN FREY	0	0
Rockford		BEHR IRON AND STEEL - 1	(815) 987-2600	JAMIE SNIDER	1	1
Stockton		BILL BOELK - 4	(815) 563-4186	GARY FLOWMAN	0	0
Troy Grove	7	BUCKMAN SCRAP IRON	(815) 223-0332	DAN FREY	1	0
SOUTHERN						
Bloomington	8	MORRIS TICK CO	(800) 722-8425	PHIL RINDA		
Crestwood	9	COZZI INDUSTRIAL	(773) 585-3030		1	1
Glenwood	10	CHICAGO HTS IRON & SUPPLY	(708) 757-7262			
Joliet		BERLINSKY SCRAP - 5	(815) 726-4334			
Kankakee	11	BELSON SCRAP & STEEL	(815) 932-7416			
Paxton	12	G & D SALVAGE	(219) 388-2852			
Pontiac		(One man reporting center)		DAVE STADLER		
Shorewood	13	ACE IRON & METALS	(815) 723-2612			
METRO						
Batavia	14	ELGIN SALVAGE	(847) 742-9500	BETH TRIMARCO		
Bellwood	15	UNITED SCRAP	(708) 780-6800			
Elgin		ELGIN SALVAGE - 14	(847) 742-9500		2	1
Elk Grove		ELGIN SALVAGE - 14	(847) 742-9500			
Glen Ellyn		BERLINSKY SCRAP - 5	(815) 726-4334	JOE IWINSKI		
Glenview		(Site is closed)				
Inglaside		ELGIN SALVAGE - 14	(847) 742-9500	KEN ROOF	1	1
LaGrange		(Scrap metal taken to Bellwood by Nicor Meter Shop Employees)				
Prospect Hts.	16	C&R SCRAP IRON & METAL	(773) 585-3030			
Romeoville		BERLINSKY SCRAP - 5	(815) 726-4334			
Schaumburg		C&R SCRAP IRON & METAL - 16	(773) 585-3030		1	1
CENTRAL						
Aurora River St.		BERLINSKY SCRAP - 5	(815) 726-4334	PAUL ADAMS	1	1
Aurora Eola Rd		(Not Applicable)		TODD HAMMER	0	0
Aurora Highland		BERLINSKY SCRAP - 5	(815) 726-4334	WENDELL WELLS	0	0

Post-it® Fax Note 7871 | Date 9-1 | # of pages ▶ 1
To Roger Ramirez | From Claudia Machol
Co./Dept. DEPA | Co. Nicor Gas
Phone # | Phone # 630/983-8676
Fax # | Fax # 630/983-4028

U:\C-S\Scrap Collection Contractor List.xls
Last Updated 08/28/2000

Nicor dept there are 43 Service Centers